IN THE CLAIMS

1. (Cancelled)

2. (Cancelled)

3. (Cancelled)

4. (Cancelled)

5. (Cancelled)

6. (Cancelled)

7. (Cancelled)

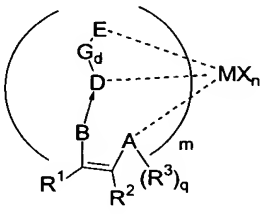
8. (Cancelled)

9. (Cancelled)

10. (Cancelled)

11. (Cancelled)

12. (Amended) A catalytic system for olefin polymerization or copolymerization comprising a catalyst having the following formula:



wherein:

A, B,D, E, G, and connecting bonds comprise a tridentate ligand; and wherein

A represents a metal-coordinating moiety selected from the group consisting of an oxygen atom-containing moiety, a sulfur atom-containing moiety, a selenium atom-containing moiety, a nitrogen atom-containing moiety, and a phosphorus atom-containing moiety;

B represents a chemically inert moiety selected from the group consisting of a nitrogen atom-containing moiety, a phosphorus atom-containing moiety, and a substituted or unsubstituted hydrocarbyl moiety;

D represents O, S, Se, ~~represents~~ a metal-coordinating moiety selected from the group consisting of an oxygen atom-containing moiety, a sulfur atom-containing moiety, and a selenium atom-containing moiety~~, a nitrogen atom-containing moiety, and a phosphorus atom-containing moiety~~;

E represents a metal-coordinating moiety selected from the group consisting of an oxygen atom-containing moiety, a sulfur atom-containing moiety, a selenium atom-containing moiety, a nitrogen atom-containing moiety, and a phosphorus atom-containing moiety;

G represents a chemically inert substituted or unsubstituted hydrocarbyl moiety and an inert functional group;

R^1, R^2, and R^3 each individually represents hydrogen or a chemically inert substituted or unsubstituted hydrocarbyl moiety, R^1 and R^2 being optionally linked to form a ring;

M represents a transition metal selected from group 3 to group 11, M being linked to each of A, D, and E by a covalent or a coordinate covalent bond;

X represents a weakly coordinating monovalent ligand;

d is 0 or 1;

q is 0 or 1;

m is 1, 2 or 3; and

n is 1, 2, 3 or 4 as needed to balance the charge on M.

13. (Original) The catalytic system as recited in claim 12, wherein A is selected from the group consisting of O, S, sulfinyl, sulfonyl, Se, $\overset{\diagdown}{|}\!\!-NR^{22}$, $-NR^{23}R^{24}$, $-N(O)R^{25}R^{26}$, $\overset{\diagdown}{|}\!\!-PR^{27}$, $-PR^{28}R^{29}$, $-P(O)R^{30}R^{31}$, and $-Se(O)R^{39}$, wherein R^{22}, R^{23}, R^{24}, R^{25}, R^{26}, R^{27}, R^{28}, R^{29}, R^{30}, R^{31}, and R^{39} each individually hydrogen, halogen, or a substituted or unsubstituted hydrocarbyl group.

14. (Original) The catalytic system as recited in claim 12, wherein D is selected from the group consisting of O, S, sulfinyl, sulfonyl, Se,  , $-NR^{23}R^{24}$, $-N(O)R^{25}R^{26}$,  , $-PR^{28}R^{29}$, $-P(O)R^{30}R^{31}$, and $-Se(O)R^{39}$, wherein R^{22}, R^{23}, R^{24}, R^{25}, R^{26}, R^{27}, R^{28}, R^{29}, R^{30}, R^{31}, and R^{39} each individually hydrogen, halogen, or a substituted or unsubstituted hydrocarbyl group.

15. (Original) The catalytic system as recited in claim 12, wherein E is selected from the group consisting of O, S, sulfinyl, sulfonyl, Se,  , $-NR^{23}R^{24}$, $-N(O)R^{25}R^{26}$,  , $-PR^{28}R^{29}$, $-P(O)R^{30}R^{31}$, and $-Se(O)R^{39}$, wherein R^{22}, R^{23}, R^{24}, R^{25}, R^{26}, R^{27}, R^{28}, R^{29}, R^{30}, R^{31}, and R^{39} each individually hydrogen, halogen, or a substituted or unsubstituted hydrocarbyl group.

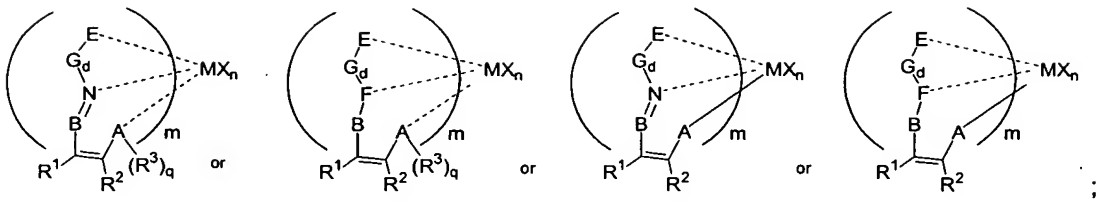
16. (Original) The catalytic system as recited in claim 12, wherein B and G are each a chemically inert substituted or unsubstituted hydrocarbyl moiety.

17. (Original) The catalytic system as recited in claim 12, wherein M is selected from the group consisting of Ti (IV), Zr (IV), Hf (IV), Cr (III), Fe (III), Fe (II), Ni (II), Pd, (II), and Co(II).

18. (Original) The catalytic system as recited in claim 17, wherein M is Ti (IV) or Zr (IV).

19. (Amended) The catalytic system as recited in claim 12, wherein X is selected from the group consisting of F, Cl, Br, I, nitrogen atom-containing moiety , boron atom-containing moiety , oxygen atom-containing moiety ~~chloride~~.

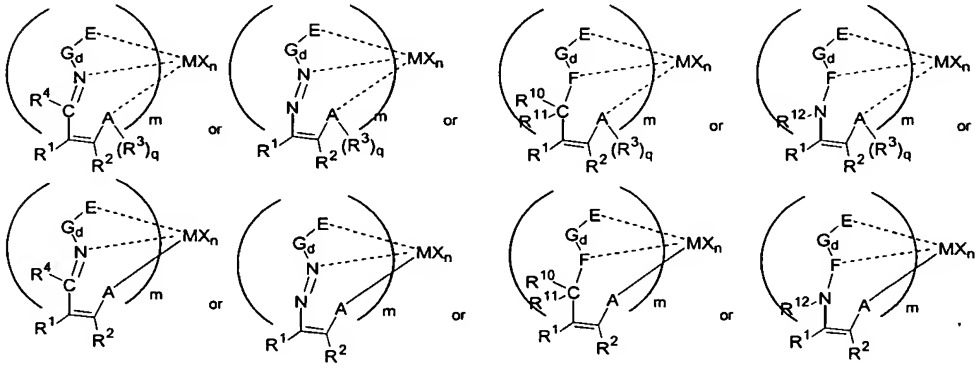
20. (Original) The catalytic system as recited in claim 12, wherein the catalyst has the following formula:



wherein

F represents a metal-coordinating moiety selected from the group consisting of an oxygen atom-containing moiety, a sulfur atom-containing moiety, a selenium atom-containing moiety, and a phosphorus atom-containing moiety.

21. (Original) The catalytic system as recited in claim 20, wherein the catalyst has the following formula:

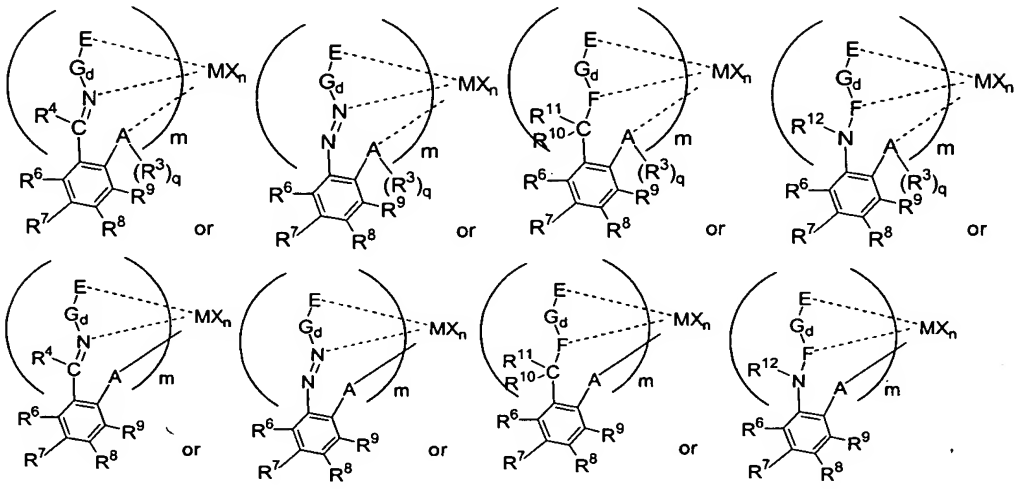


wherein:

R^4, R^{10}, and R^{11} each individually represents hydrogen or a chemically inert substituted or unsubstituted hydrocarbyl moiety, R^{10} and R^{11} being optionally linked to form a ring; and

R^{12} represents hydrogen or a chemically inert substituted or unsubstituted hydrocarbyl moiety.

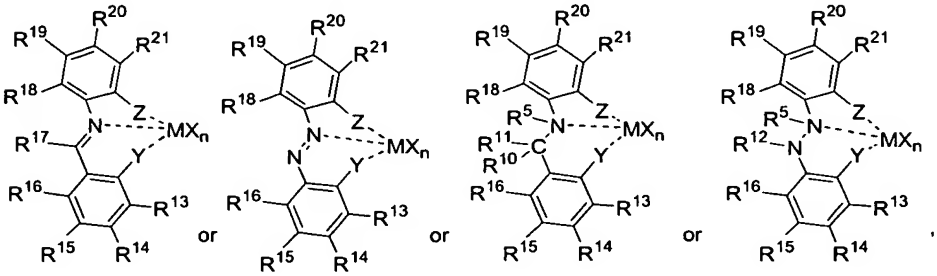
22. (Original) The catalytic system as recited in claim 20, wherein the catalyst has the following formula:



wherein:

R^6, R^7, R^8, R^9 each independently hydrogen, halogen, a chemically inert substituted or unsubstituted hydrocarbyl moiety, or a chemically inert functional group; any two adjacent R^6, R^7, R^8, and R^9 moieties being optionally linked to form a ring.

23. (Amended) The catalytic system as recited in claim 12, wherein the catalyst has the following formula:



wherein:

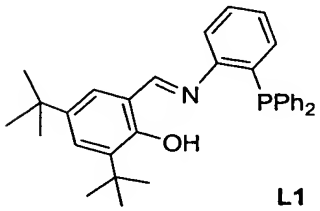
R^{10}, R^{11}, R^{12}, and R^{17} each individually represents hydrogen, halogen, substituted hydrocarbyl moiety or a chemically inert function group ~~or a chemically inert substituted or unsubstituted hydrocarbyl moiety~~, R^{10} and R^{11} being optionally linked to form a ring;

R^{13}, R^{14}, R^{15}, R^{16}, R^{18}, R^{19}, R^{20}, R^{21} each independently represents hydrogen, halogen, a chemically inert substituted or unsubstituted hydrocarbyl moiety, or a chemically inert functional group; any two adjacent R^{13}, R^{14}, R^{15}, R^{16}, R^{18}, R^{19}, R^{20}, and R^{21} moieties being optionally linked to form a ring;

R^5 represents a lone pair nitrogen atom electron, hydrogen, or a metal-coordinating moiety containing an oxygen atom, a sulfur atom, a selenium atom, or a phosphorus atom; and

Y and Z each independently represents a metal-coordinating moiety selected from the group consisting of an oxygen atom-containing moiety, a sulfur atom-containing moiety, a selenium atom-containing moiety, a nitrogen atom-containing moiety, and a phosphorus atom-containing moiety.

24. (Original) The catalytic system as recited in claim 12, wherein said tridentate ligand is selected from the group consisting of



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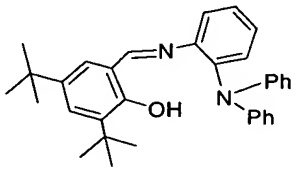

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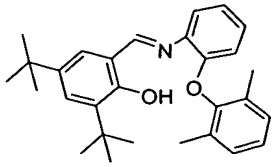

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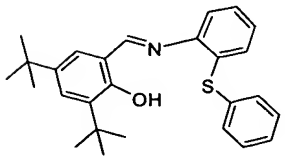

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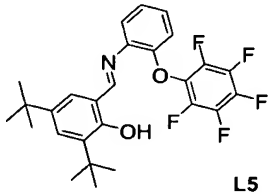

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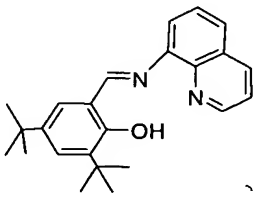

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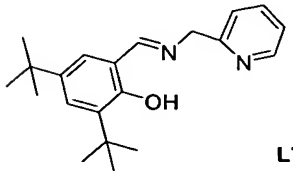

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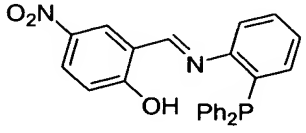

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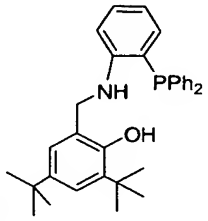

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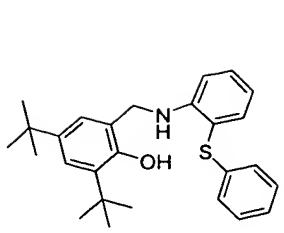

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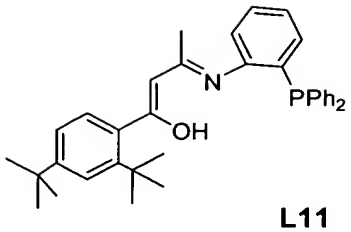

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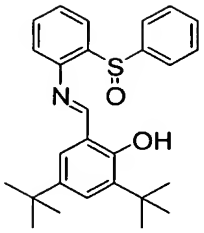

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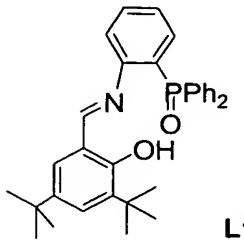

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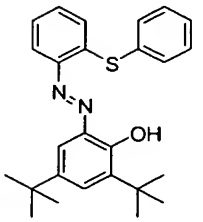

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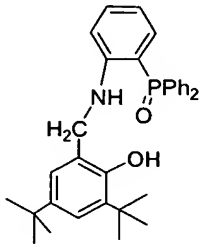

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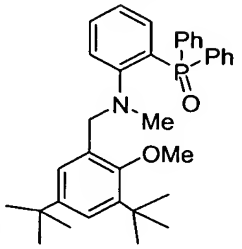

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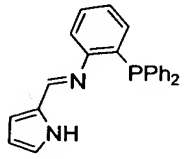

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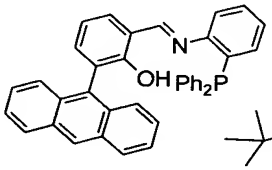

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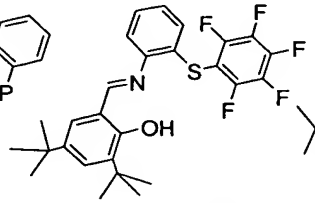

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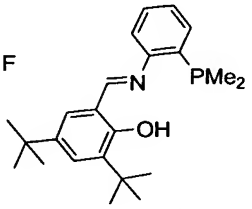

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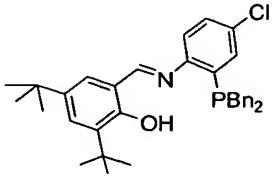

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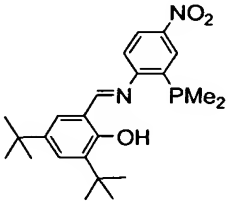

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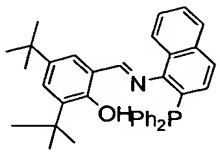

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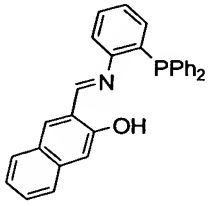

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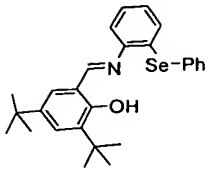

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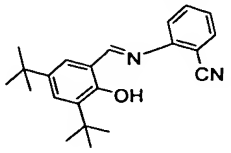

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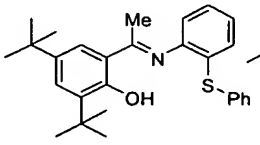

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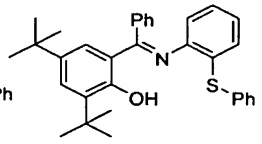

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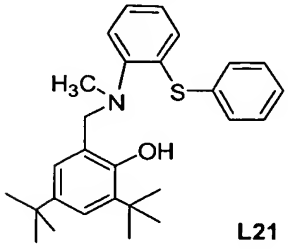

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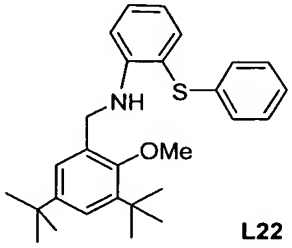

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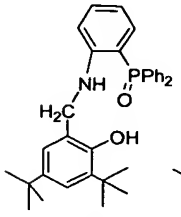

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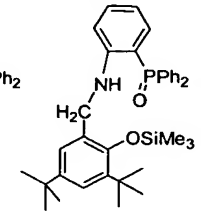

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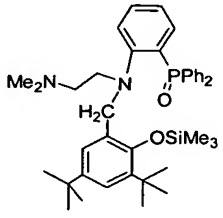

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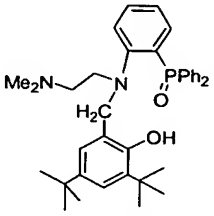

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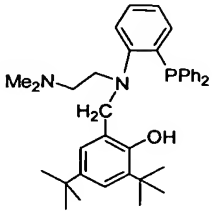

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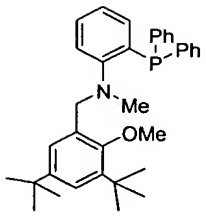
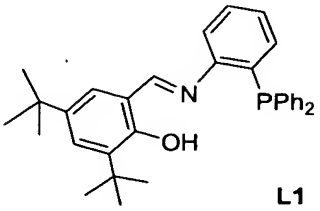


L17

25. (Amended) The catalytic system as recited in claim 24, wherein said tridentate ligand is



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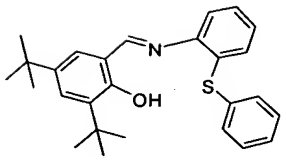

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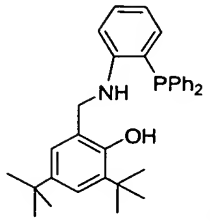

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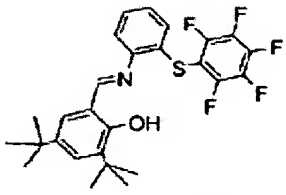

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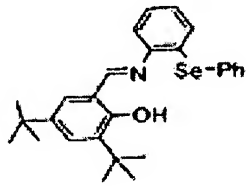

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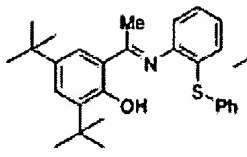
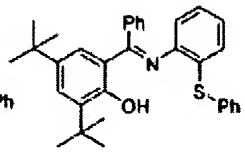
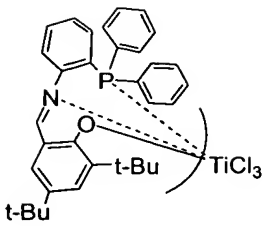


L35



L36

26. (Original) The catalytic system as recited in claim 12, wherein said catalyst is selected from the group consisting of



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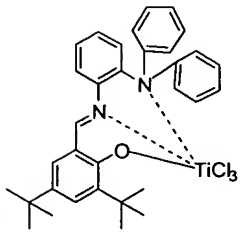

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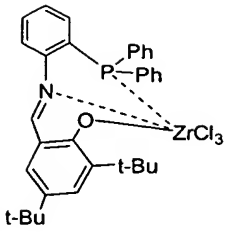

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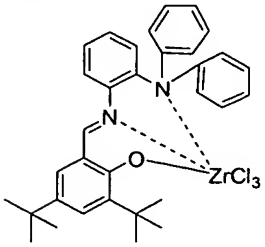

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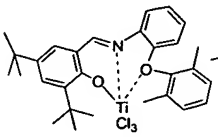

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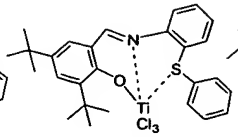

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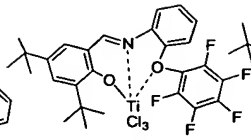

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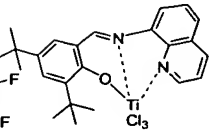

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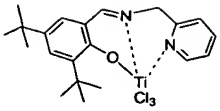

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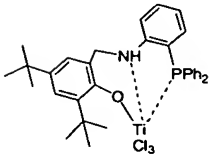

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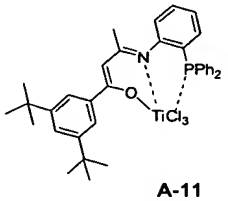

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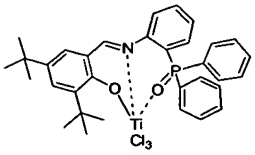

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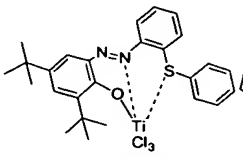

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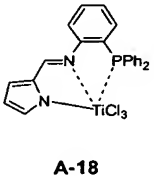

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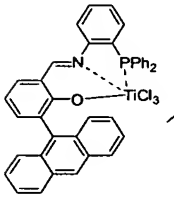

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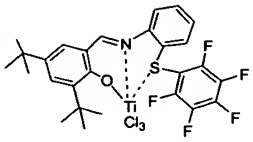

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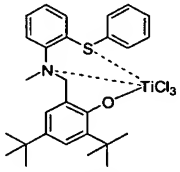

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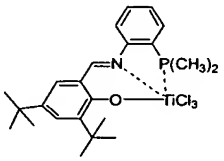

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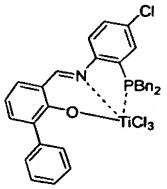

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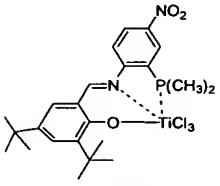

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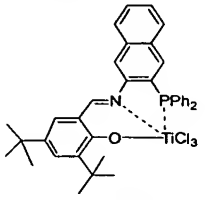

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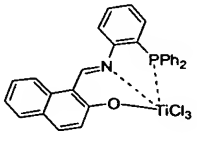

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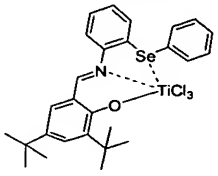

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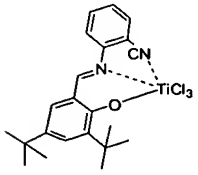

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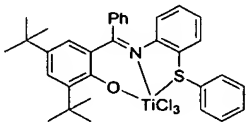

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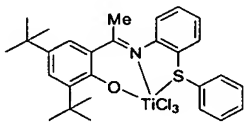

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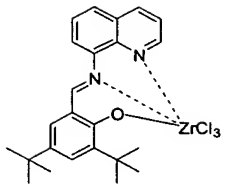

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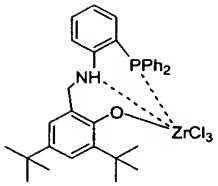

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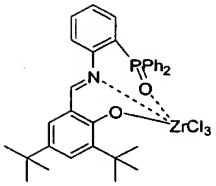

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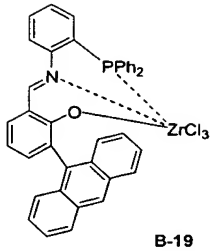

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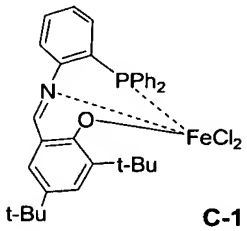

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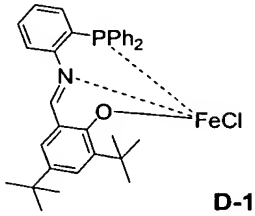

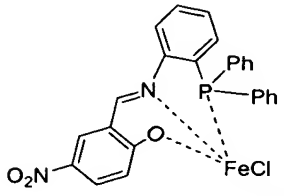

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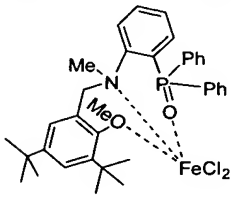

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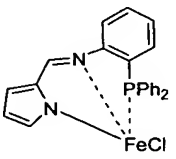

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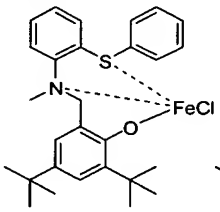

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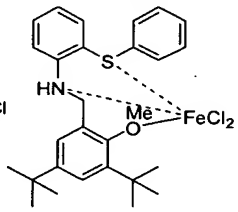

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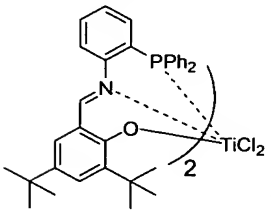

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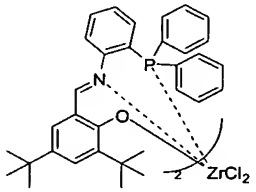

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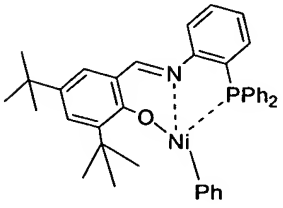
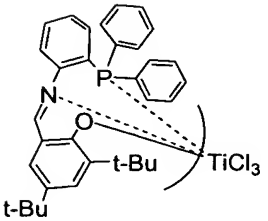


H-1 .

27. (Original) The catalytic system as recited in claim 26, wherein said catalyst is



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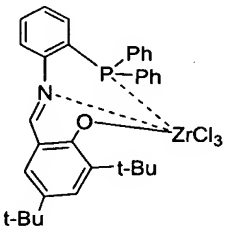

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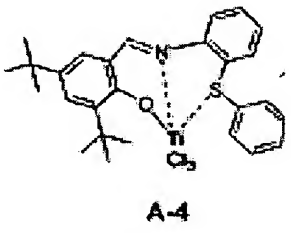

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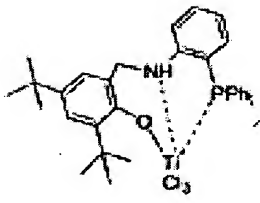

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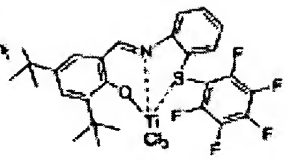

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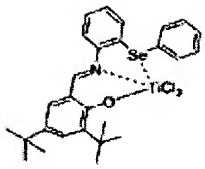

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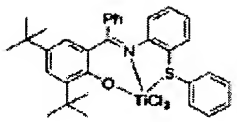

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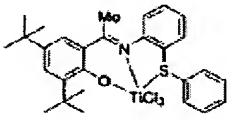

A-36

28. (Original) The catalytic system as recited in claim 12, wherein the catalyst is a homogeneous catalyst or a heterogeneous catalyst.

29. (Original) The catalytic system as recited in claim 12, further comprising a solid support.

30. (Original) The catalytic system as recited in claim 29, wherein said solid support is an organic polymeric material or an inorganic material.

31. (Original) The catalytic system as recited in claim 30, wherein said solid support is an inorganic material selected from the group consisting of silica, alumina, titania, magnesium chloride, and mixtures thereof.

32. (Amended) The catalytic system as recited in claim 28~~29~~, further comprising a co-catalyst.

33. (Amended) The catalytic system as recited in claim 32, wherein said co-catalyst is a methyl aluminoxane (MAO) or a modified methyl aluminozane (MAO), alkyl aluminum compound, boron alkyl, the metal salt of BF_4^-, $(C_6F_5)_4B^-$ and $(R_{40}BAr_3)^-$ ~~or a modified methyl aluminoxane (MMAO)~~.

34. (Original) A process for polymerizing an olefin or a mixture of olefins or copolymerization in the presence of the catalytic system as recited in claim 32.

35. (Original) The process as recited in claim 34, wherein said process is carried out at a pressure of 0.1 Mpa to10 Mpa and a temperature of –50°C to 150°C.

36. (Original) The process as recited in claim 34, wherein said process is carried out at a catalyst:co-catalyst mole ratio of 1:1 to 1:5000.

37. (Original) The process as recited in claim 36, wherein said process is carried out at a catalyst:co-catalyst mole ratio of 1:10 to 1:2000.

38. (Original) The process as recited in claim 34, wherein said olefin or mixture of olefins is selected from the group consisting of ethylene, alkenes and functionalized alkenes containing 3 to 30 carbons, cycloalkenes, norbornene and derivatives thereof, dienes, acetylenes, styrene, alkenols, alkenoic acids and derivatives thereof, acrylic monomers, and mixtures thereof.

39. (Amended) The process as recited in claim 38, wherein said olefin is ethylene, propylene, hexene, norbornene, or methyl methacrylate.

40. (Original) The process as recited in claim 39, wherein said olefin is ethylene.

Respectfully submitted,

Date: 7/22/04

Thomas R. FitzGerald
Reg. No. 26,730